

S/N Unknown

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Trevor C. McMorris et al.	Examiner:	Leigh C Maier
Serial No.:	Unknown	Group Art Unit:	Unknown
Filed:	Herewith	Docket:	103.006US5
Title:	ILLUDIN ANALOGS USEFUL AS ANTITUMOR AGENTS		

INFORMATION DISCLOSURE STATEMENT

Mail Stop Patent Application
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq.*, the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(b), it is believed that no fee or statement is required with the Information Disclosure Statement. However, if an Office Action on the merits has been mailed, the Commissioner is hereby authorized to charge the required fees to Deposit Account No. 19-0743 in order to have this Information Disclosure Statement considered.

Pursuant to 37 C.F.R. §1.98(d), copies of the listed documents are not provided as these references were previously cited by or submitted to the U.S. Patent Office in connection with Applicants' prior U.S. application, Serial No. 10/134,260, filed on April 29, 2002, which is relied upon for an earlier filing date under 35 U.S.C. §120.

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The Examiner is invited to contact the Applicants' Representative at the below-listed telephone number if there are any questions regarding this communication.

Respectfully submitted,

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)	Complete if Known	
	Application Number	Unknown
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	First Named Inventor	McMorris, Trevor
	Group Art Unit	Unknown
	Examiner Name	Maier, Leigh
Sheet 1 of 5	Attorney Docket No: 103.006US5	

US PATENT DOCUMENTS						
Examiner Initial *	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	Filing Date If Appropriate
	US-4,559,157	12/17/1985	Smith, J. A., et al.	252	90	04/21/1983
	US-4,608,392	08/26/1986	Jacquet, B., et al.	514	844	08/28/1984
	US-4,612,302	09/16/1986	Szabo, , et al.	514	11	11/14/1983
	US-4,684,620	08/04/1987	Hruby, , et al.	514	11	09/04/1984
	US-4,820,508	04/11/1989	Wortzman, M. S.	424	59	06/23/1987
	US-4,853,371	08/01/1989	Coy, , et al.	514	12	06/22/1988
	US-4,938,949	07/03/1990	Borch, R. F., et al.	424	10	09/12/1988
	US-4,992,478	02/12/1991	Geria, N. M.	514	782	04/04/1988
	US-5,387,578	02/07/1995	Angelucci, F., et al.	514	21	02/20/1992
	US-5,439,936	08/08/1995	Kelner, M. J., et al.	514	546	02/09/1993
	US-5,439,942	08/08/1995	Kelner, Michael J., et al.	514	691	10/31/1990
	US-5,523,490	06/04/1996	Kelner, Michael J., et al.	568	374	11/01/1994
	US-5,563,176	10/08/1996	Kelner, M. J., et al.	514	691	07/15/1994
	US-5,723,632	03/03/1998	McMorris, T. C.	549	331	08/08/1996
	US-5,932,553	08/03/1999	McMorris, T. C., et al.	514	23	07/18/1996
	US-6,025,328	02/15/2000	McMorris, T. C., et al.	514	2	02/20/1998

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Foreign Document No	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	T ²
	JP-62-234040	10/14/1987		C07 C	49/737	
	WO-91/04754	04/18/1991	Kelner, M. J., et al.	A61K	47/48	
	WO-94/18151	08/18/1994	Kelner, M. J., et al.	C07 C	49/737	
	WO-94/25013	11/10/1994	Cousins, R. D., et al.	A61K	31/075	
	WO-96/34005	10/31/1996	Danishefsky, , et al.	C07 H	15/24	
	WO-97/03995	02/06/1997	Danishefsky, , et al.	C07 H	15/24	
	WO-98/03458	01/29/1998	McMorris, T. C., et al.	C07 C	49/737	
	WO-91/04754	04/18/1991	Kelner, Michael J., et al.			

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS			
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		ANCHEL, MARJORIE , et al., "Antibiotic Substances From Basidiomycetes. VII.	

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		Clitocybe Illudens", <u>Proceedings of the National Academy of Sciences</u> , 36 (5), (1950),pp. 300-305	
		ANCHEL, M. , et al., "The Biogenesis of Illudins S and M in Clitocybe Illudens", <u>Phytochemistry</u> , 9 (11), (Nov. 1970),pp. 2339-2343	
		ARAP, W. , et al., "Cancer Treatment by Targeted Drug Delivery to Tumor Vasculature in a Mouse Model", <u>Science</u> , 279, (Jan. 16, 1998),pp. 377-380	
		BRANDSTETEROVA, E. , et al., "HPLC Analysis of Novel Anti-Cancer Agents- Illudens and Their Analogs", <u>Journal of Liquid Chromatography</u> , 16 (1), (1993),pp. 115-125	
		BRANDSTETEROVA, E. , et al., "HPLC Determination of a New Anticancer Agent (Acylfulvene) in Serum", <u>Neoplasma</u> , 39 (6), (1992),pp. 369-373	
		BURRES, N. S., et al., "Antitumor Activity and Mechanism of Action of the Novel Marine Natural Products Mycalamide-A and -B and Onnamide", <u>Cancer Research</u> , 49, (June, 1989),pp. 2935-2940	
		CURTIS, ERIN A., et al., "An Efficient Dipolar-Cycloaddition Route to the Pterosin Family of Sesquiterpenes", <u>Tetrahedron Letters</u> , 36 (12), (March 1995),pp. 1989-1992	
		DILLMAN, R. O., et al., "Athymic Mouse Model of a Human T-Cell Tumor", <u>Cancer Research</u> , 45, (November, 1985),pp. 5632-5636	
		EVA, K. M., et al., "An Efficient Synthesis of Pterosin C and Other Pterosins", <u>Canadian Journal of Chemistry</u> , 62 (10), (Oct. 1984),pp. 1945-1953	
		FRENCH, A. L., et al., "Poisoning with the North American Jack O' Lantern Mushroom", <u>Clinical Toxicology</u> , 26 (1 & 2), (1988),pp. 81-88	
		GIOVANELLA, B. C., et al., "Correlation Between Response to Chemotherapy of Human Tumors in Patients and in Nude Mice", <u>Cancer</u> , 52, (1983),pp. 1146-1152	
		GIOVANELLA, B. C., et al., "DNA Topoisomerase I-Targeted Chemotherapy of Human Colon Cancer in Xenografts", <u>Science</u> , 246 (4933), (Nov. 24, 1989),pp. 1046-1048	
		GOLDIN, A. , et al., "Current Results of the Screening Program at the Division of Cancer treatment, National Cancer Institute", <u>Europ. J. Cancer</u> , 17, (1981),pp. 129-142	
		GOLDIN, A. , et al., "Historical Development and Current Strategy of the National Cancer Institute Drug Development Program", In: <u>Methods in Cancer Research</u> , Vol. XVI, <u>Cancer Drug Development Part A, Chapter V</u> , Academic Press, Inc., New York,(1979),pp. 165-245	
		GREENE, T. W., <u>Protective Groups in Organic Synthesis</u> , Chapters 4, 5 & 6, John Wiley & Sons, Inc., New York,(1981),pp. 114-217	
		HANSON, J. R., et al., "Studies in Terpenoid Biosynthesis. Part XV. Biosynthesis of the Sesquiterpenoid Illuden M", <u>Journal of the Chemical Society, Perkin Transactions I</u> ,(1976),pp. 876-880	

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DATE CONSIDERED

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Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		HARA, M. , et al., "6-Deoxyilludin M, a New Antitumor Antibiotic: Fermentation, Isolation and Structural Identification", <u>The Journal of Antibiotics</u> , 40, (Nov. 1987),pp. 1643-1646	
		HARTTIG, U. , et al., "Leaianafulvene, a Sesquiterpenoid Fulvene Derivative from Cultures of Mycena Leaiana", <u>Phytochemistry</u> , 29 (12), (1990),pp. 3942-3944	
		HIRONO, I. , et al., "Reproduction of Acute Bracken Poisoning in a Calf with Ptaquiloside, a Bracken Constituent", <u>The Veterinary Record</u> , 115 (15), (Oct. 1984),pp. 375-378	
		INOUE, K. , et al., "Antitumor Efficacy of Seventeen Anticancer Drugs in Human Breast Cancer Xenograft (MX-1) Transplanted in Nude Mice", <u>Cancer Chemother. Pharmacol.</u> , 10, (1983),pp. 182-186	
		JOCEAH, J. <u>Org. Chem. (Jociah, 00223263)</u> ; 97, Vol. 62, (9), Univ. of California, 3015-3018	
		KAWATO, Y. , et al., "Antitumor Activity of a Camptothecin Derivative, CPT-11, Against Human Tumor Xenografts in Nude Mice", <u>Cancer Chemother. Pharmacol.</u> , 28, (1991),pp. 192-198	
		KELNER, M. J., et al., "In Vitro and In Vivo Studies on the Anticancer Activity of Dehydroilludin M", <u>Anticancer Research</u> , 15, (1995),pp. 873-878	
		KELNER, M. J., et al., "Nonresponsiveness of the Metastatic Human Lung Carcinoma MV522 Xenograft to Conventional Anticancer Agents", <u>Anticancer Research</u> , 15, (1995),pp. 867-872	
		KELNER, M. J., et al., "Preclinical Evaluation of Illudens as Anticancer Agents", <u>Cancer Research</u> , 47, (1987),pp. 3186-3189	
		KELNER, M. J., et al., "Preclinical Evaluation of Illudens as Anticancer Agents: Basis for Selective Cytotoxicity", <u>J. Natl. Cancer Inst.</u> , 82 (19), (1987),pp. 1562-1565	
		LU, JIANLIANG , et al., "An expeditious synthesis of the potent antitumor agent, (+)-hydroxymethylacylfulvene using an allenic Paulson-Khand type cycloaddition", <u>American Chemical Society, Division of Organic Chemistry Abstracts</u> , 217th ACS National Meeting in Anaheim, CA,(Mar. 21-25, 1999),1 p.	
		MATSUMOTO, TAKESHI , et al., "An Alternative Synthesis of Illudin M", <u>Tetrahedron Letters</u> , 14, (March 1970),pp. 1171-1174	
		MATSUMOTO, T. , et al., "Synthesis of Illudin S", <u>Tetrahedron Letters</u> , 23, (May 1971),pp. 2049-2052	
		MCMORRIS, T. C., et al., "(Hydroxymethyl) Acylfulvene: An Illuden Derivative with Superior Antitumor Properties", <u>Journal of Natural Products</u> , 59 (9), (Sept. 1996),pp. 896-899	
		MCMORRIS, T. C., et al., "(Hydroxymethyl)acylfulvene: An Illudin Derivative with Superior Antitumor Properties", <u>Chemical Abstracts</u> , abstract No. 196032, Vol. 125, No. 15,(October 7, 1996),	

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DATE CONSIDERED

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

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		MCMORRIS, T. C., et al., "Acylfulvenes, a New Class of Potent Antitumor Agents", <u>Experientia</u> , 52 (1), (April 21, 1995),pp. 75-80	
		MCMORRIS, TREVOR C., et al., "An Acetal Derivative of Illudin S with Improved Antitumor Activity", <u>Tetrahedron letters</u> , 38 (10), (1997),pp. 1697-1698	
		MCMORRIS, TREVOR C., et al., "Design and Synthesis of Antitumor Acylfulvenes", <u>The Journal of Organic Chemistry</u> 62 (9), (1997),pp. 3015-3018	
		MCMORRIS, T. C., et al., "Fungal Metabolites. The Structures of the Novel Sesquiterpenoids Illudin -S and -M", <u>J. of Amer. Chem. Soc.</u> , 87 (7), (1965),pp. 1594-1600	
		MCMORRIS, T. C., et al., "On the Mechanism of Toxicity of Illudens: The Role of Glutathione", <u>Chemical Research Toxicology</u> , 3 (6), (Nov./Dec. 1990),pp. 574-579	
		MCMORRIS, T. C., et al., "Reaction of Antitumor Hydroxymethylacylfulvene (HMAF) with Thiols", <u>Tetrahedron</u> , 53 (43), (1997),pp. 14579-14590	
		MCMORRIS, T. C., et al., "Structure and reactivity of Illudens", <u>Tetrahedron</u> , 45 (17), (1989),pp. 5433-5440	
		MCMORRIS, T. C., et al., "Structure-Activity Relationships of Illudens: Analogs with Improved Therapeutic Index", <u>Journal of Organic Chemistry</u> , 57 (25), (Dec. 4, 1992),pp. 6876-6883	
		MCMORRIS, TREVOR C., "Total Synthesis of hydroxymethylacylfulvene, an antitumour derivative of illudin S", <u>Chem. Commun.</u> , (1997),pp. 315-316	
		PADWA, ALBERT , et al., "An approach toward the Illudin family of sesquiterpenes using the tandem cyclization-cycloaddition reaction of rhodium carbenoids", <u>The Journal of Organic Chemistry</u> , 62 (5), (March 7, 1997),pp. 1317-1325	
		PADWA, ALBERT , et al., "Generation and Cycloaddition behavior of spirocyclic carbonyl ylides. Application to the synthesis of the Pterosin Family of Sequiterpenes", <u>The Journal of Organic Chemistry</u> , 61 (1), (Jan. 12, 1996),pp. 73-81	
		PADWA, ALBERT , et al., "Synthetic studies toward Illudins and Ptaguilosin. A Highly Convergent approach via the dipolar cycloaddition of carbonyl ylides", <u>The Journal of the American Chemical Society</u> , 116, (1994),pp. 2667-2668	
		SCHABEL, F. M., et al., "Testing Therapeutic Hypotheses in Mice and Man:Observations on the Therapeutic Activity Against Advanced Solid Tumors of Mice Treated with Anticancer Drugs that Have Demonstrated or Potential Clinical Utility for Treatment of Advanced Solid Tumors of Man", <u>In: Methods in Cancer Research</u> , Vol. XVII, Cancer Drug Development Part B, Chapter 1, Academic Press, Inc.,(1979),pp. 3-50	
		SHIMOMURA, O. , "The Role of Superoxide Dismutase in Regulating the Light Emission of Luminescent Fungi", <u>The Journal of Experimental Botany</u> , 43 (256), (Nov. 1992),pp. 1519-1525	

EXAMINER

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Substitute Disclosure Statement Form (PTO-1449)

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		SHINOZAWA, S. , et al., "The Antitumor Effect of Illudin S (Lampterol) Entrapped in Liposome for Mice Inoculated with Ehrlich Ascites Tumor Cells", <u>Chemical Abstracts</u> , 90 (25), Abstract No. 197682m, (June 18, 1979), 1 p.	
		STEEL, G. G., et al., "The Response to Chemotherapy of a Variety of Human Tumor Xenografts", <u>Br. J. Cancer</u> , 47, (1983), pp. 001-013	
		TANAKA, K. , et al., "Metabolism by Rat Liver Cytosol of Illuden S, a Toxic Substance of Lampteromyces Japonicus. II. Characterization of Illuden S-Metabolizing Enzyme", <u>Xenobiotica</u> , 22 (1), (1992), pp. 33-39	
		TANAKA, K. , et al., "Metabolism of Illuden S, a Toxic Principle of Lampteromyces Japonicus, by Rat Liver. I. Isolation and Identification of Cyclopropane Ring-Cleavage Metabolites", <u>Xenobiotica</u> , 20 (7), (1990), pp. 671-681	
		TANAKA, KEN , et al., "Michael-type addition of illudin S, a toxic substance from Lampteromyces japonicus with Cysteine and Cysteine-containing peptides in vitro", <u>Chem. Pharm. Bull.</u> , Vol. 44, No. 2, (1996), pp. 273-279	
		TELEAY, <u>Tetrahedron Lett.</u> (Teleay, 00404039); 97, Vol. 38, U of California, 1697-1698	
		VARKI, N. M., et al., "Cloned Low Metastatic Variants from Human Lung Carcinoma Metastases", <u>Anticancer Research</u> , 10, (1990), pp. 637-644	
		VENDETTI, J. M., et al., "Current NCI Preclinical Antitumor Screening in Vivo: Results of Tumor Panel Screening, 1976-1982, and Future Directions", <u>Advances in Pharmacology and Chemotherapy</u> , 20, (1984), pp. 1-20	
		VENDITTI, J. M., "The National Cancer Institute Antitumor Drug Discovery Program, Current and Future Perspectives: A Commentary", <u>Cancer Treatment Reports</u> , 67 (9), (Sept. 1983), pp. 767-772	
		WALSER, J. , et al., "Mode of Action of Illuden S", <u>Antimicrobial Agents and Chemotherapy</u> , 3 (3), (March 1973), pp. 357-363	
		WEINREB, S. M., "Fulvenes Derived from Illuden S", <u>Tetrahedron Letters</u> , 38, (Sept. 1971), pp. 3489-3491	
		WEISS, D. , et al., "Antibiotic Substances from Basidiomycetes. VII. Clitocybe Illudens", <u>Proc. Natl. Acad. Sci. USA</u> , 36 (5), (1950), 300-305	

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